

BETA PROGRAM

Beta Update

August 2, 1991

2020131528



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Agenda

- History at PM
- Premier
- Motorola Venture
- Present Status
- Future Technology Plans
- Business Issues
- Summary

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PROCESS FOR MAKING A
CARBON HEAT SOURCE AND
SMOKING ARTICLE INCLUDING
THE HEAT SOURCE AND A FLAVOR GENERATOR

1978

Background Of The Invention

The present invention relates to a process for making a carbon source and to a smoking article comprising the carbon source and a flavor generator. More particularly, the present invention relates to a process for producing a carbon source from a preformed ligno-cellulosic material and to a smoking article, such as a cigarette, which includes the carbon source and a flavor generator.

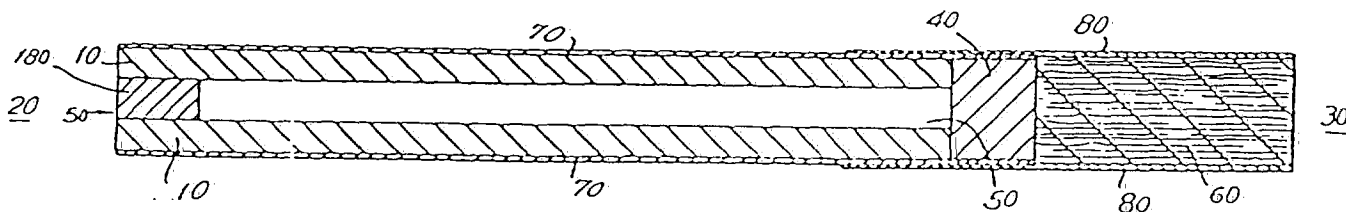


FIG. 1

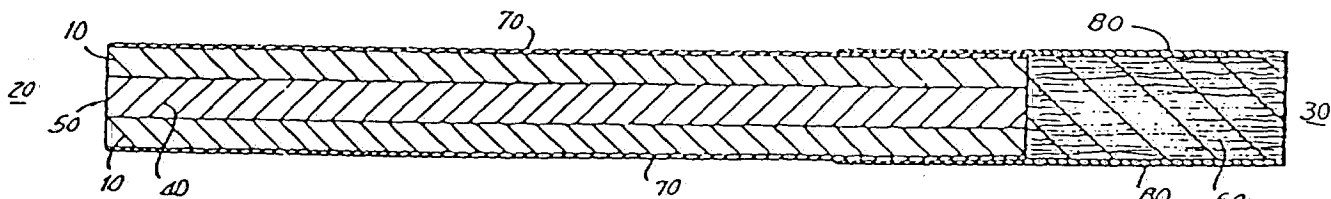


FIG. 2

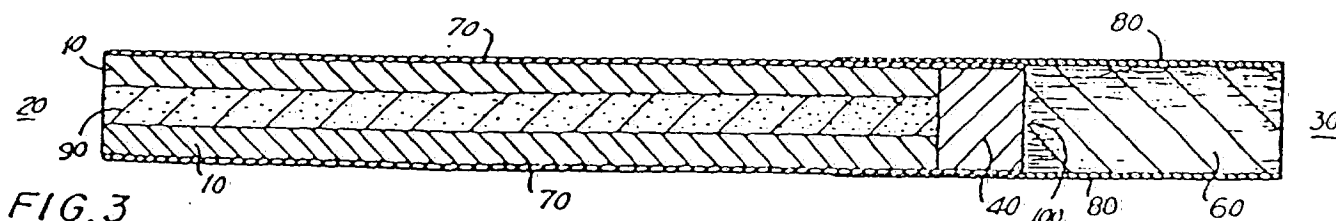
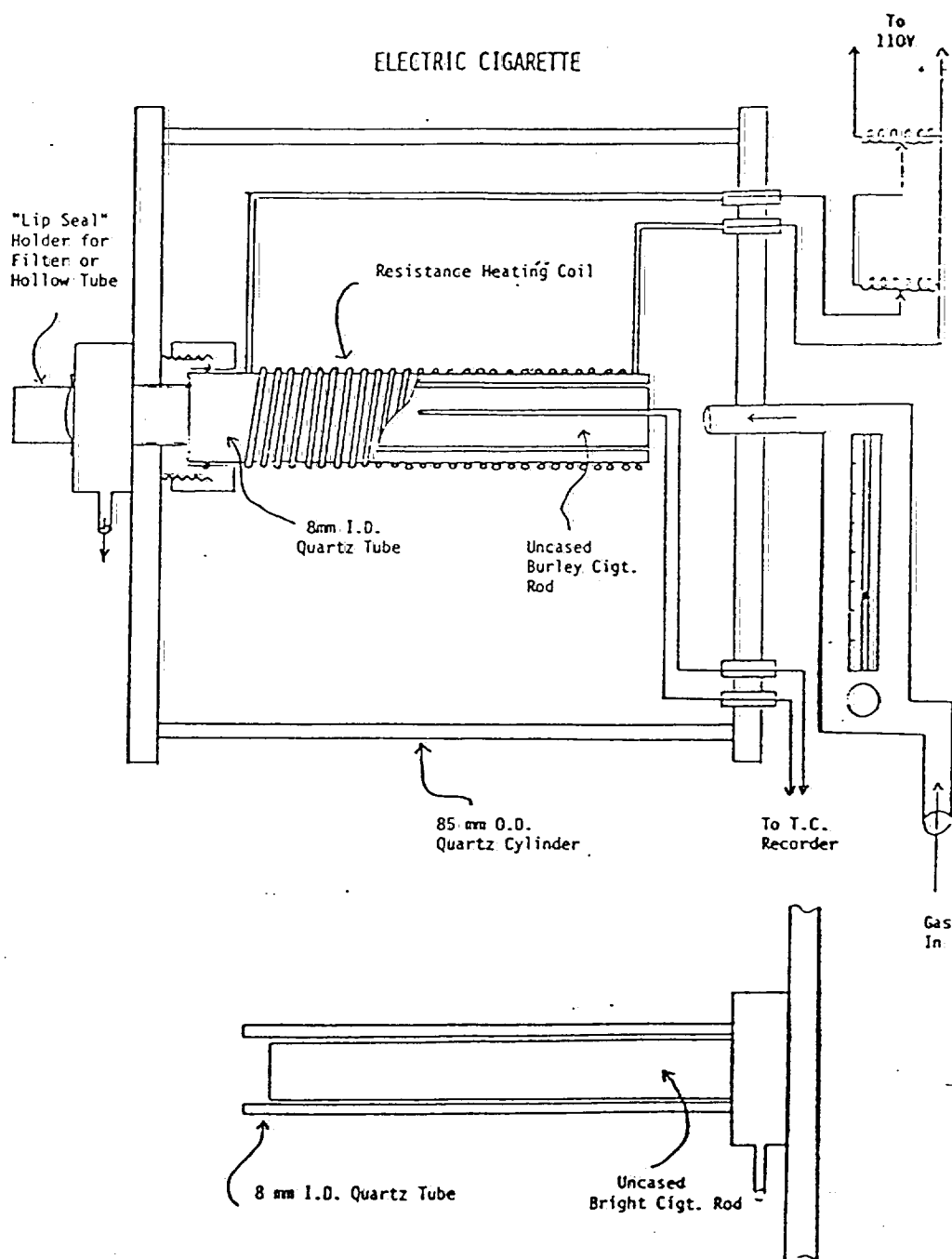


FIG. 3

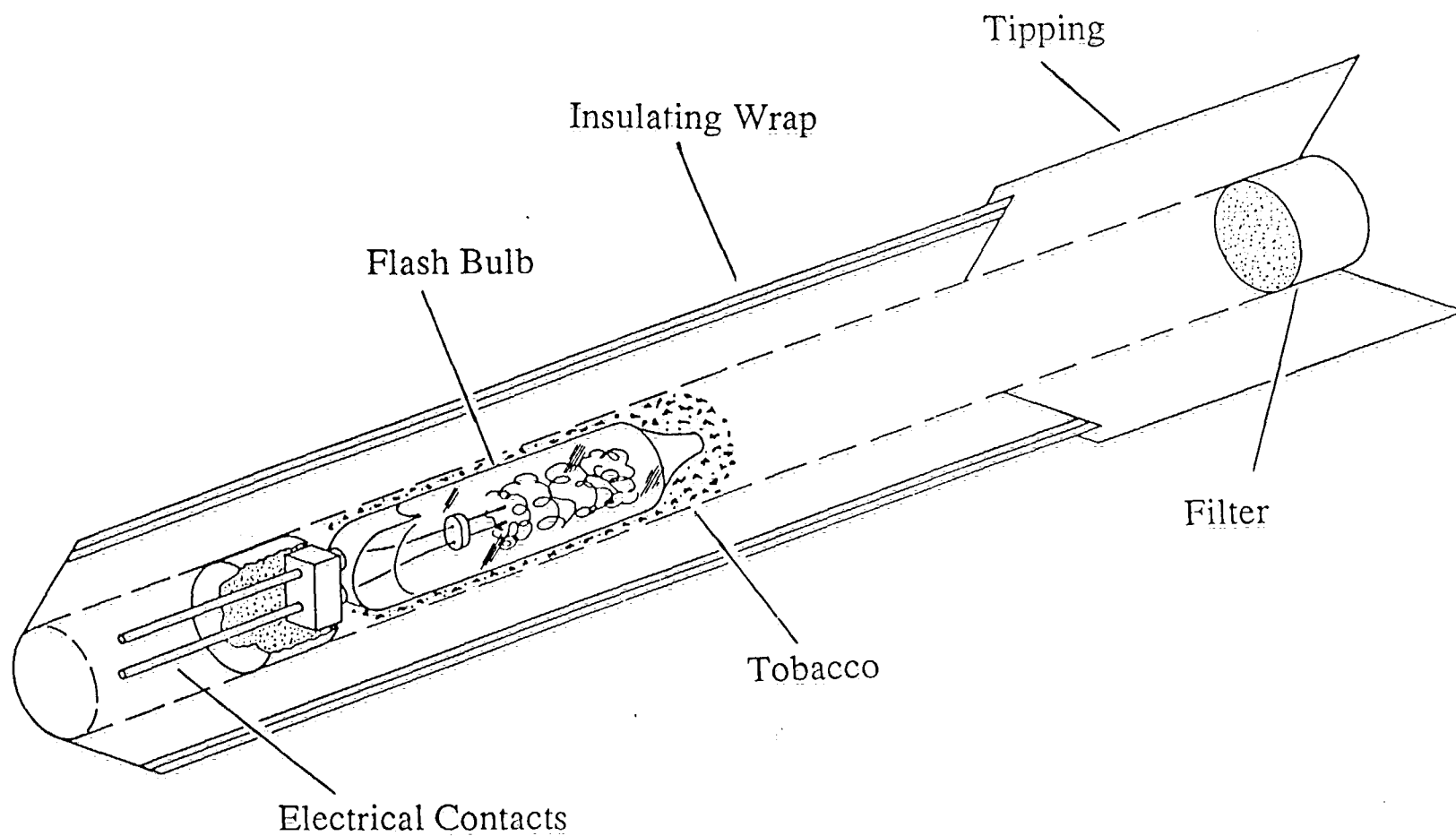
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1980



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Photoflash Device



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History

- Original Delta Group - 1976-80
- Aerosol Research - 1980-85
 - Electric cigarette
 - Flashlamp driven device
 - Best energy usage ~100 calories/puff
- Vapor Devices (Favor) - 1985-86



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Premier

- Premier Announced - September 1987
- Large Development Effort
 - Delta - carbon heat source (carbon monoxide)
 - Sigma - iron nitride heat source (no carbon monoxide)
- Small Beta Group Started in 1987
 - Shrink size
 - Sophisticated circuits
 - Tobacco pellets with heater



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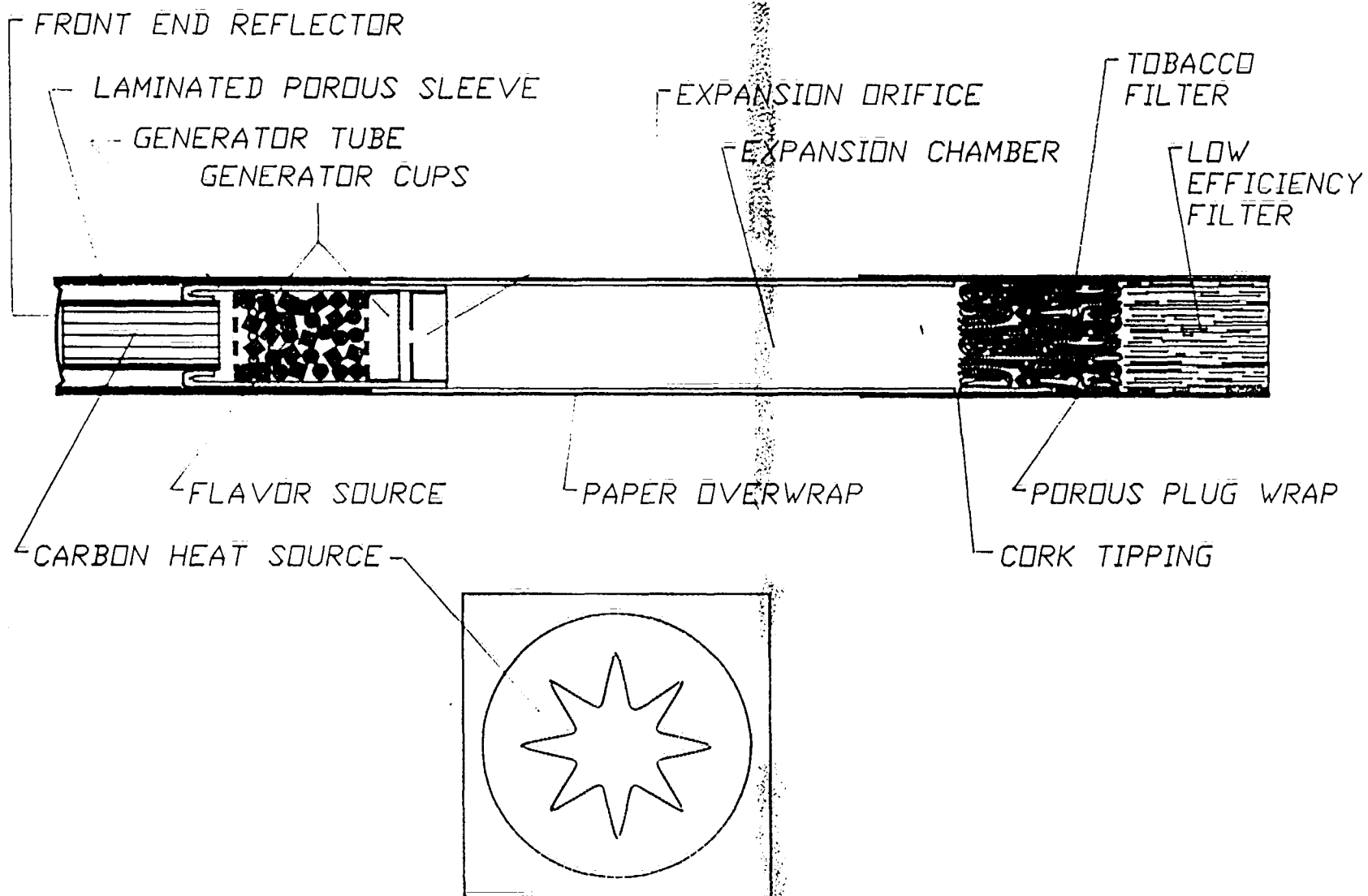
Premier

- Design Targets
 - No wires
 - On-demand use
 - Single hand-held operation
 - Reusable power source
 - Reduce power and size

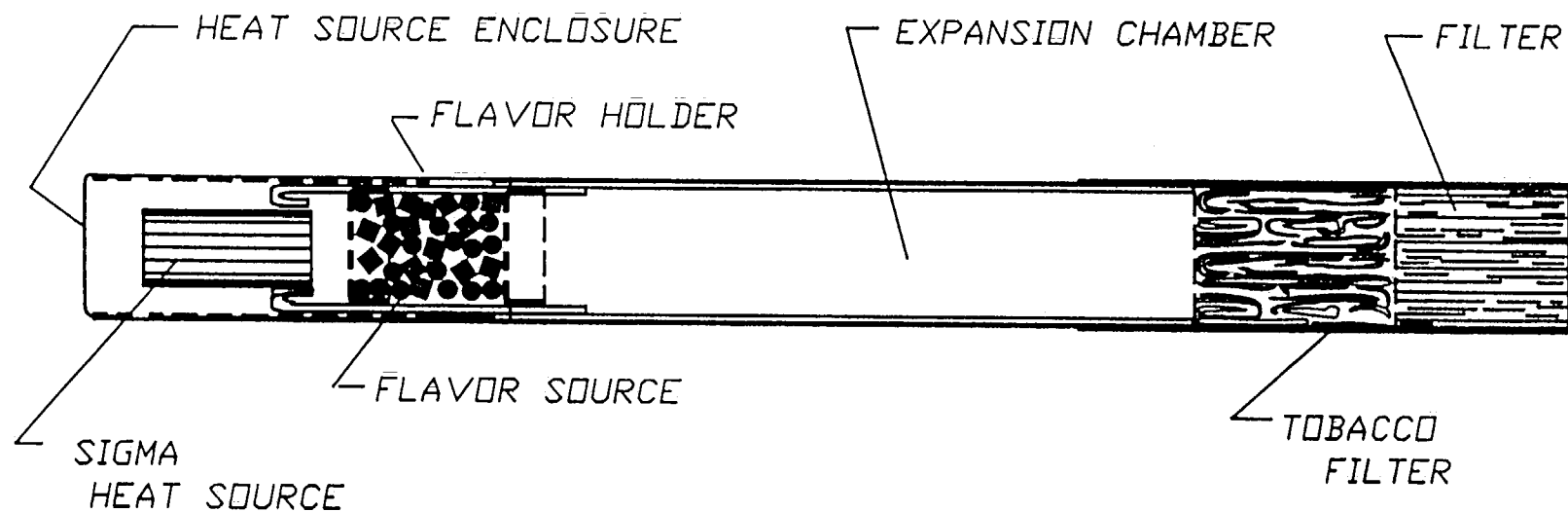


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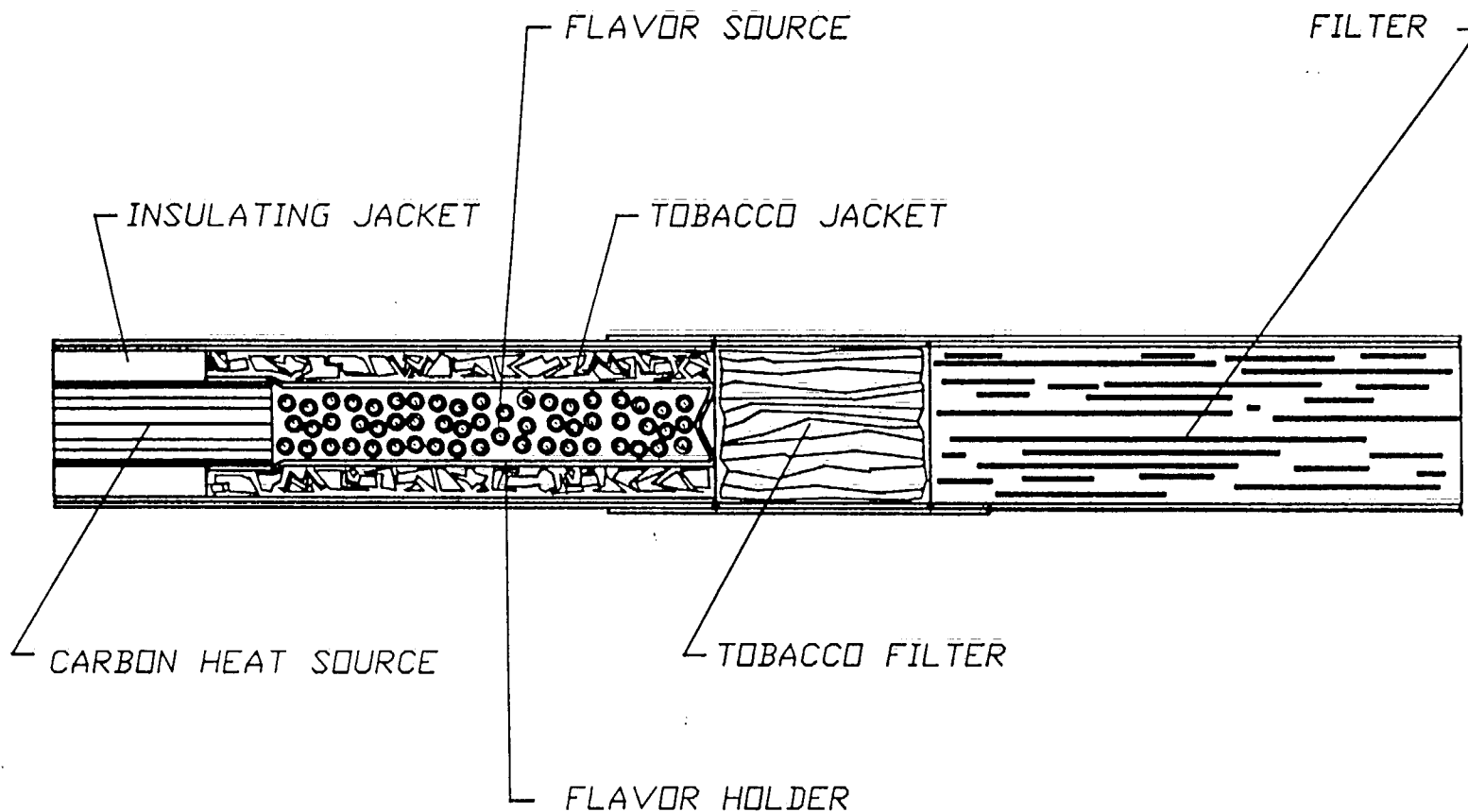
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SIGMA ARTICLE



PREMIER



Sample Prototypes

- Ashtray
- Laboratory Prototype
 - "Flavor Dot" concept
 - Sophisticated electric circuits
 - Energy reduced from 100 calories to 2.5 calories/puff
 - Tobacco 5 mg/puff



Motorola Venture

- Studied 39 Technology Companies
- Narrowed to:
 - Motorola
 - NEC
 - Raytheon
 - McDonnell Douglas
 - Sony
 - Phillips
 - Siemens
- Motorola Selected



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BETA PROGRAM

Motorola

- Multi-Billion Dollar U.S. Based Corporation
- Global Corporation
- Interested in Consumer Products
- Eager to Work with PM-USA
- Recognized Quality Leader
- Extensive R&D Sources
- Has Joint Venture with Toshiba
- Toshiba #1 in Integrated Circuits
- Sophisticated High Speed/Low Cost Manufacturing
- Technology to Deliver Heater Arrays and Power Source
- Largest U.S. Battery Purchaser



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Motorola

- Built 100 Test Electronic Modules
 - Program puff parameters
 - Tobacco blends
 - Subjective/flavor optimization (PM Expertise)
 - Battery development
- Built 10,000 Disposable Heater Cartridges
- Outlined Four-Phase Program to Commercial Product (3-4 Years)
- Board Decision Not To Be Architect of Smoking Product



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Development Program

	NRE	Tooling	Schedule
<u>Phase 1 - 100 Prototypes</u>	<u>\$ 345 K</u>		Sept. '90
Phase 2 - 100 Prototypes 25 Chargers	\$1000 K		7 Mos.
Phase 3 - 1000 Prototypes 100 Chargers	\$1100 K		12 Mos.
1st Product	\$ 900 K	\$2300 K	24 Mos.
Feasibility Appendix VI	\$ 100 K		12 Mos.
Phase 4 - 100 Prototypes 25 Chargers	\$ 800 K		20 Mos.
2nd Product	\$1000 K	\$ 800	36 Mos.



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Present Status

- Product Feasibility Proven
 - Blends developed (regular and menthol)
 - TPM delivery (3.5 to 15 mg)
 - Cigarette-like response
 - Nicotine delivery to >0.6 mg
 - Tobacco taste and impact
- Present Product Vision
 - All day device (recharge at night)
 - Permanent heater
 - Disposable heater
 - Single stick rechargeable after smoking
 - Permanent heater
 - Disposal heater



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Pro's of Beta Smoking Article

- Perceived Health
- Social Pressure
- Control
- Value - Less Waste
- Convenience
- Sensory - Unlimited Flavors/New Aerosols
- Cleanliness
- Unique
- Safety
- Image

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Con's of Beta Smoking Article

- Perceived Health - Man-Made
- Social Pressure - Any Cigarette Bad
- Behavior Modification
- Inconvenience - Size, Shape, Weight
- Sensory - Not Current Brand
- Environment - Disposal
- Fad
- Image - Inconsistent With "Smoker"

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Unique Smoking Articles

- Original Delta
 - Allowed - 1
- Delta/Sigma
 - Allowed - 9
 - Pending - 21
- Beta (Electrical)
 - Allowed - 2
 - Pending - 5
 - Preparation - 29



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PATENTS

Competitor Electrical Patents

• RJR -	3 (1990-91)
• AB Leo/Pharmacia -	3 (1988)
• Proctor & Gamble -	1 (1988)
• Imperial Tobacco -	1 (1988)
• Battelle (Publication) -	1 (1989)
• Brown & Williamson -	1 (1990)
• TKD Corporation -	1 (1989)
• Siemens -	2 (1989)

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Future Technology Plans

- Product Prototype In-House with Outside Help on Components Is Possible
 - May miss important technology
 - Hard to incorporate emerging technology
- Objective of Technology Consulting Firm
 - Evaluate:
 - Technology
 - Manufacturing feasibility
 - New materials
 - Battery status
- Technology Consulting Candidates
 - Battelle
 - SRI



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Technology Partner

- Longer Term PM Needs Technology Partner in this Project
 - U.S. companies doubtful
 - Japanese connection difficult
 - Siemens has technology--many new ventures

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Technology Needs

- Specialty Materials
- Battery Technology
- Sensors
- Electronic Packaging
- Manufacturing Technology
- Circuit Miniaturization



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Business Issues

- Offensive Project
 - Regulatory agencies
 - Environmental
 - Marketing
 - Pricing



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Summary

- Product Feasibility Has Been Shown With In-House Program
- Need Short-Term Advice from Technology House (Battelle)
- Need Long-Term Technology Partner Who Manufactures
- Key Business Issue Is: Product Development Offensive



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